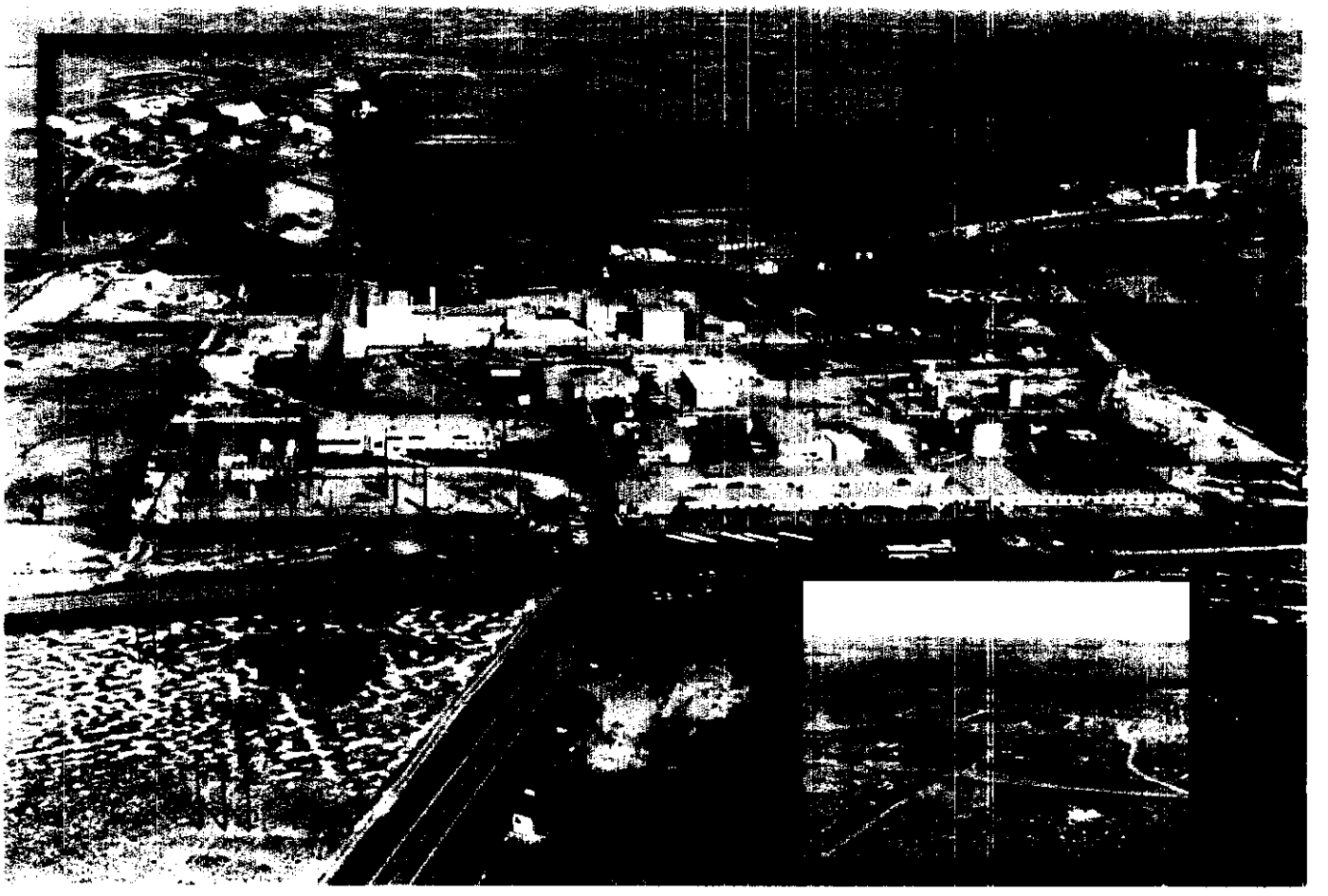
INEEL
IDAHO NATIONAL ENGINEERING & ENVIRONMENTAL LABORATORY

IDAHO DEPARTMENT OF HEALTH AND WELFARE

DIVISION OF ENVIRONMENTAL QUALITY

Final Record of Decision for

Test Area North



Operable Unit 1-10
Idaho National Engineering and Environmental Laboratory
Idaho Falls, Idaho

DOE/ID-10682
Revision 0

Final Record of Decision for Test Area North

October 1999

Operable Unit 1-10
Idaho National Engineering and Environmental Laboratory
Idaho Falls, Idaho

PART I - DECLARATION

Site Name and Location

Test Area North, Waste Area Group 1
Operable Unit 1-10
Idaho National Engineering and Environmental Laboratory
Idaho Falls, Idaho

Statement of Basis and Purpose

The Test Area North (TAN) Waste Area Group (WAG) 1 is one of the 10 Idaho National Engineering and Environmental Laboratory (INEEL) WAGs identified in the Federal Facility Agreement and Consent Order (FFA/CO) by the U.S. Environmental Protection Agency (EPA) Region 10, the Idaho Department of Health and Welfare (IDHW) Division of Environmental Quality, and the U.S. Department of Energy Idaho Operations Office (DOE-ID), herein after referred to as the Agencies. Operable Unit (OU) 1-10 is listed as the WAG 1 Comprehensive Remedial Investigation (RI)/Feasibility Study (FS) in the FFA/CO. The RI/FS task was to assess the investigations previously conducted for WAG 1, thoroughly investigate the sites not previously evaluated, and determine the overall risk posed by the WAG. The RI/FS results and the proposed remedial actions were summarized in a Proposed Plan, which was issued for public review.

This is the Final Record of Decision (ROD) for the sites that were investigated under OU 1-10, and provides an institutional control evaluation for all sites at WAG 1, including the OU 1-07B ROD "No Action" sites, where an unacceptable risk for unrestricted land use remains. This ROD presents the selected remedial actions for eight sites at TAN that may present an imminent and substantial endangerment to human health and the environment. One additional site that may require remedial action has been selected for a treatability study under WAG 10 to determine specific uptake of mercury by plants, and will be remediated, as necessary, under WAG 1 in the future. The remedial actions were selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1986, as amended by the Superfund Amendments and Reauthorization Act, and to the extent practicable, with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This ROD is based on the information contained in the INEEL Administrative Record, and is designed to satisfy the requirements of the FFA/CO.

The possibility exists that contaminated environmental media not identified by the INEEL FFA/CO or in this comprehensive investigation will be discovered in the future as a result of routine operations, maintenance activities, decontamination and dismantlement (D&D) activities, and review of previous D&D actions at TAN. New sites will be addressed using the process for new site inclusion as defined in the FFA/CO and will be assessed and remediated pursuant to the process agreed upon by the Agencies at the time of the new site identification. Where appropriate, the remedial action objectives (RAOs) and final remediation goals (FRGs) identified in this ROD will be used to complete potential cleanup activities.

The DOE-ID is the lead agency for this decision. The EPA and the IDHW participated in the evaluation of the final action alternatives. The EPA and IDHW both concur with the selection of the preferred remedy for the eight TAN sites of concern, the selection of the ninth for the treatability study, and the "No Action" and "No Further Action" decision for the remaining sites.

Assessment of the Site

This ROD describes remedial actions for eight of the 94 identified release sites within TAN that may present an imminent and substantial endangerment to human health and the environment. The eight sites include:

1. Intermediate-Level (Radioactive) Waste Disposal System (Site TSF-09), referred to as the V-Tanks.

2. Contaminated Tank Southeast of Tank V-3 (Site TSF-18), referred to as the V-Tanks.

3. PM-2A Tanks Contents and Contaminated Soil (Site TSF-26), referred to as the PM-2A Tanks.

4. TAN/Technical Support Facility (TSF)-1 (Soil Area) (Site TSF-06, Area B), referred to as the Soil Contamination Area South of the Turntable.

5. TAN Disposal Pond (Site TSF-07), referred to as the Disposal Pond.

6. TSF Burn Pit (Site TSF-03).

7. Water Reactor Research Test Facility (WRRTF) Burn Pit (Site WRRTF-01).

8. Oils and Diesel Fuel Leak (Site WRRTF-13), referred to as the Fuel Leak.

The remedial actions selected in this ROD are designed to reduce the potential threats to human health and the environment to acceptable levels. The Mercury Spill Area (TSF-08) was selected for a treatability study under WAG 10, and will be remediated, as necessary, under WAG 1 in the future. The TSF Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) are being remediated under a separate ROD. The remaining 83 sites have been identified as being "No Action" sites where the land use is unrestricted or "No Further Action" sites where institutional controls are required to restrict land use in the future. These sites include underground storage tanks, disposal ponds, burn/disposal pits, septic systems, and miscellaneous other releases.

Description of the Selected Remedies

V-Tanks (TSF-09 and TSF-18)

For the V-Tanks, the selected remedy is Soil and Tank Removal, Ex Situ Treatment of Tank Contents, and Disposal, which will address the principal threat posed by the V-Tank contents. The major components of the selected remedy for the V-Tanks include:

- Excavating contaminated soil
- Disposing the contaminated soil at an acceptable soil repository
- Sampling tank contents

- Removing tank contents and placing the contents into U.S. Department of Transportation (DOT) approved containers
- Transportation of the tank contents and other investigation-derived waste to an approved off-Site treatment facility
- Treatment of tank contents and investigation-derived waste at an approved Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act, and mixed waste treatment facility
- Disposing of treated tank contents and investigation-derived waste at the INEEL CERCLA Disposal Facility, other acceptable facility, or the Waste Isolation Pilot Plant (WIPP)
- Decontamination of the tanks and removing the tanks for disposal
- Post-remediation soil sampling at the bottom of the excavation to verify FRGs are met and analyze for additional contaminants in the V-Tank content waste to perform a risk analysis in support of an institutional control determination at this site
- Filling the excavated area with clean soil, then contouring and grading to surrounding soil
- Institutional controls consisting of signs, access control, and land-use restrictions may be established and maintained, depending on the results of post-remediation sampling.

The selected remedy addresses the risks posed by the V-Tanks by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed. A review of the institutional controls, if required as part of the remedy, will be conducted no less than every 5 years.

PM-2A Tanks (TSF-26)

For the PM-2A Tanks, the selected remedy is Soil Excavation, Tank Content Vacuum Removal, Treatment, and Disposal that will address the low-level threat posed by the waste at this site. The major components of the selected remedy for the PM-2A Tanks include:

- Sampling of the surface soils for additional contaminants identified in the PM-2A Tanks to support a no-longer-contained-in determination and hazardous waste determination
- Excavating contaminated soil
- Disposing the contaminated soil at an acceptable soil repository
- Sampling tank contents
- Removing tank contents using commercial vacuum excavation technology
- Verification of the waste form not requiring treatment before disposal (and treating tank contents to meet waste acceptance criteria, if necessary)

- Disposing the tank contents and investigation-derived waste at an acceptable repository (or other approved facility, if necessary)

- Decontaminating the tanks and filling with an inert material

- Post-remediation sampling at the bottom of the excavation to verify FRGs are met and analyze for additional contaminants in the PM-2A Tank content waste to perform a risk analysis in support of an institutional control determination at this site

- Filling the excavated area with clean soil, then contouring and grading to surrounding soil

- Institutional controls consisting of signs, access control, and land-use restrictions may be established and maintained depending on the results of the sampling activities.

The selected remedy addresses the risks by the PM-2A Tanks by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed. A review of the institutional controls, if required as part of the remedy, will be conducted no less than every 5 years.

Soil Contamination Area South of the Turntable (TSF-06, Area B)

For the Soil Contamination Area South of the Turntable, the selected remedy is Excavation and On-Site Disposal, which will address the low-level threat posed by the waste at this site. The major components of the selected remedy include:

- Sampling to identify the extent of soil exceeding the FRG and sample for contaminants that were identified in the PM-2A Tanks to support a no-longer-contained-in determination and hazardous waste determination preparation for this site

- Removal of the adjacent road (Snake Avenue) and perform radiological surveys and sampling on the road base to determine areas exceeding the FRG

- Excavating contaminated soil to a maximum of 3 m (10 ft) or the maximum depth at which contaminant concentrations are above final remediation goals, whichever is less

- Sampling to verify the final remediation goal was met

- Disposing of the contaminated soil at an acceptable soil repository

- Backfilling the excavated area with clean soil, then contouring and grading to surrounding soil.

The selected remedy addresses the risks posed by the Soil Contamination Area South of the Turntable by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed. Institutional controls will not be required, unless contamination above FRGs are found below 3 m (10 ft), because all contamination is expected to be removed and all exposure pathways eliminated.

Disposal Pond (TSF-07)

For the Disposal Pond, the selected remedy is Limited Action, which will address the low-level threat posed by the waste at this site. The major components of the selected remedy include:

- Soil sampling will be performed for contaminants identified in the TSF-05 injection well to support a no-longer-contained-in determination for the surface soils at TSF-07
- Inspecting existing operational controls to assess the adequacy and need for additional institutional controls
- Implementing additional institutional controls as needed, including access restrictions (e.g., fences, posted signs, and permanent markers) limiting land use for at least 100 years
- Environmental monitoring for at least 100 years to protect current and future occupational receptors.

A review of the selected remedy will be conducted no less than every 5 years until it is determined by the Agencies to be unnecessary. The objective of the institutional controls is to effectively prevent access to the area and exposure to contaminated media until such time that the risk from Cs-137, due to decay, will diminish to acceptable risk levels for unrestricted land use within 100 years.

Burn Pits (TSF-03 and WRRTF-01)

For the Burn Pits, the selected remedy is a Native Soil Cover, which will address the low-level threat posed by the waste at this site. Sampling will be performed to assess the Burn Pits for additional contaminants of concern (COCs) that may not have been properly evaluated during the RI. If the sampling indicates that additional contaminants are present, a cost evaluation will be performed based on the design of the cover required to be protective of human health from contaminants at this site. If it is determined to be cost effective to excavate and dispose of the Burn Pits contents at an approved facility, then that option may be performed. The major components of the selected remedy, Native Soil Cover, for the Burn Pits include:

- Sampling to determine the cover design and monitoring requirements, and to ensure the remedy is protective of human health and the environment
- Comparing cost of the soil cover and long-term monitoring with the excavation and disposal option
- If the soil cover option is selected, adding uniform layers of clean soil and surface vegetation to limit direct contact with contaminated soil
- Inspecting existing institutional controls to assess the adequacy and need for additional controls.

As part of this remedy, institutional controls will be implemented (e.g., fences, posted signs, and permanent markers), for at least 100 years, and periodically inspected and maintained to ensure the integrity of institutional controls. A review of the remedy will be conducted no less than every 5 years until it is determined by the Agencies to be unnecessary.

The selected remedy addresses the risks by the Burn Pits by effectively preventing access to the area and exposure to contaminated media. If as a result of the cost comparison, the excavation and disposal option is implemented, that remedy will address the risk by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed, and may eliminate the need for institutional controls at the site.

Fuel Leak (WRRTF-13)

For the Fuel Leak, the selected remedy is Excavation and Land Farming, which will address the low-level threat posed by the waste at this site. The major components of the selected remedy include:

- Sampling the Fuel Leak soil to determine risk-based remediation goals in accordance with the State of Idaho Risk-Based Corrective Action guidance (*Risk-Based Corrective Action Guidance Document for Petroleum Releases)* and the Idaho Division of Environmental Quality guidance (*Information Series # 7: Procedures for Land Treatment of Petroleum Contaminated Soils*), and determine land farming excavation volumes

- Excavating contaminated soil to a maximum of 3 m (10 ft) or the maximum depth that contaminant concentrations are above risk-based remediation goals in accordance with the State of Idaho Risk-Based Corrective Action guidance (*Risk-Based Corrective Action Guidance Document for Petroleum Releases*), whichever is less

- Sampling to ensure contaminated soil exceeding remediation goals has been removed

- Treating the contaminated soil at the Central Facilities Area Land Farm

- Backfilling excavated area with clean soil, including any stockpiled, then contouring and grading to surrounding soil.

The selected remedy addresses the risks posed by the Fuel Leak by effectively removing the source of contamination and, thus, breaking the pathway by which a future receptor may be exposed. Institutional controls may be required, if contamination above cleanup standards is found below 3 m (10 ft), however, all contamination is expected to be removed and all exposure pathways eliminated.

Additional Components of the Selected Remedy for Waste Area Group 1

The selected remedies for specific sites, as described above, will be implemented in conjunction with remedial actions for the entire WAG 1. The additional components of the remedy selected for WAG 1 include institutional controls and disposition of stored investigation-derived waste.

Institutional Controls. No additional remediation will be conducted under CERCLA for 83 of the 94 sites at WAG 1. However, institutional controls will be maintained at some of these sites because residual contamination precludes unrestricted land use. Institutional controls will also be maintained in the interim until the selected remedy has been implemented at six of the eight sites identified for remediation. Long-term institutional control will be required for three sites identified for remedial action (Disposal Ponds and Burn Pits) and the other five sites requiring remedial action will be evaluated after remedial actions have been completed. Because remediation goals are based on soil concentrations equivalent to a risk of 1E-04 to a hypothetical resident living on the site 100 years in the future, institutional controls may be required after cleanup. However, institutional controls will not be required after remediation if all contaminated media are removed to basalt, if contaminant concentrations are

comparable to local background values, or if residual concentrations are less than or equal to a 1E-04 risk-based soil concentrations for a hypothetical current or future residential scenario.

The U.S. Department of Energy (DOE) ensures that institutional controls will be in effect over the next 100 years unless a 5-year review concludes that unrestricted land use is allowable. After 100 years, DOE may no longer manage INEEL activities and controls will take the form of land-use restrictions. Though land use after 100 years is uncertain, it is likely that industrial operations will continue at the INEEL and WAG 1.

Institutional controls will be applied initially to the sites listed in the following table. The list of sites requiring institutional controls will be modified as selected remedies are implemented and the results of verification sampling are available. The list also will be subject to change as a consequence of future 5-year reviews.

Institutional control sites at Waste Area Group 1.

Site Code	Description
IET-04	IET Stack Rubble Site
TSF-03[a]	TSF Burn Pit
TSF-05[b]	TSF Injection Well
TSF-06, Area 1	TAN/TSF Soil Area, Soil Area Northeast of Turntable
TSF-06, Area 5	TAN/TSF Soil Area, Radioactive Soil Berm
TSF-06, Area 11	TAN/TSF Soil Area, TSF-06 Ditch
TSF-06, Area B[a]	TAN/TSF Soil Area, Soil Area South of Turntable
TSF-07[a]	TSF Disposal Pond
TSF-08	TSF HTRE III Mercury Spill Sites 13B and 13C
TSF-09[a]	TSF Intermediate-Level (Radioactive) Waste Disposal System
TSF-10	Drainage Pond
TSF-18[a]	Contaminated Tank Southeast of Tank V-3
TSF-23[b]	Contaminated Groundwater Beneath TSF
TSF-26[a]	TSF PM-2A Tanks
TSF-28	TSF Sewage Treatment Plant and Sludge Drying Beds
TSF-29	TSF Acid Pond
TSF-39	TSF Transite (Asbestos) Contamination
TSF-42	TAN-607-A Room 161 Contaminated Pipe
TSF-43	RPSSA Buildings 647/648 and Pads
WRRTF-01[a]	WRRTF Burn Pits I, II, III, and IV
WRRTF-13[a]	WRRTF Fuel Leak

a. This site is identified for remediation under this ROD. Until cleanup is implemented, existing institutional controls will be maintained. Long-term institutional controls will be determined after remediation is completed. Land use controls will not be required after remediation if all contaminated media are removed to basalt, if contaminant concentrations are comparable to local background values, or if residual concentrations from the COCs are less than the 1E-04 risk-based soil concentrations for a hypothetical current residential scenario.

b. This site is identified for remedial action under the OU 1-07B ROD.

Potential New Sites

The possibility exists that contaminated environmental media not identified by the INEEL FFA/CO or in this comprehensive investigation will be discovered in the future as a result of routine operations, maintenance activities, or (D&D) activities at TAN. New sites will be addressed using the process for new site inclusion, as defined in the FFA/CO, and will be assessed and remediated pursuant to the process agreed upon by the Agencies at the time of the new site identification. Where appropriate, the remedial action objectives and FRGs identified in this ROD will be used to complete potential cleanup.

Investigation-Derived Waste

Investigation-derived waste has been generated as a result of previous sampling activities at WAG 1. This waste will be appropriately characterized, assessed, and dispositioned in accordance with regulatory requirements under this ROD.

Closure of RCRA/HWMA Sites

The Agencies intend to complete cleanup of the V-Tanks (TSF-09/18) and PM-2A Tanks (TSF-26) under this ROD. These tanks, along with the TSF-19 and TSF-21 tanks, are subject to closure under the State of Idaho Hazardous Waste Management Act (HWMA) authority separate from this ROD.

Statutory Determination

The selected remedy for each site has been determined to be protective of human health and the environment, to comply with federal and state requirements that are legally applicable or relevant and appropriate (applicable or relevant and appropriate requirements to the remedial actions), and to be cost effective.

These remedies use permanent solutions and alternative treatment technologies to the maximum extent practicable. However, because treatment of radionuclide-contaminated soil is not found to be practical, those remedies addressing radionuclide-contaminated soils do not satisfy the statutory preference for treatment as a principal element of the remedy. The EPA's preference for sites that pose relatively low-level threats or where treatment is impractical is engineering controls, such as containment.

For those sites where contaminants are to be left in place (e.g., Containment and Limited Action) in excess of health-based levels, a review will be conducted no less than every 5 years after the initiation of the first remedial action (statutory 5-year review) to ensure that the remedy is still effective in protecting human health and the environment and to assess the need for future long-term environmental monitoring and institutional controls. These comprehensive statutory 5-year reviews will be conducted to evaluate factors such as contaminant migration from sites where contamination has been left in place, effectiveness of institutional controls, and overall effectiveness of the remedial actions. For the Limited Action remedy, it is assumed that the institutional controls will remain in place for at least 100 years.

The Agencies concur that "No Action" be taken at 76 sites and "No Further Action," which will include institutional controls, be taken at seven sites, plus three additional subareas of TSF-06. Those sites for which "No Further Action" is taken, based on the residential land-use assumptions, will be reviewed as part of the 5-year review process.

ROD Data Certification Checklist

The following information is included in the *Decision Summary* (Part II) of this ROD. Additional information can be found in the Administrative Record for these sites.

- COCs and their respective concentrations (Part II p. 6-7)
- Baseline risk represented by the COCs (Part II p. 6-7)
- Cleanup levels established for COCs and the basis for the levels (Part II p. 6-7)
- Current and future land and groundwater use assumptions used in the baseline risk assessment and ROD (Part II Section 6)
- Land and groundwater use that will be available at the site as a result of the selected remedies (Part II Section 6)
- Estimated capital, operation and maintenance, and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see selected remedy cost tables in Part II Sections 7-9)
- Decisive factor(s) that led to selecting the remedy (see alternative discussions in Part II Sections 7-9).

Signature Sheet

Signature sheet for the Record of Decision for OU 1-10, located in Waste Area Group 1, Test Area North, of the Idaho National Engineering and Environmental Laboratory, between the U.S. Environmental Protection Agency Region 10 and the U.S. Department of Energy Idaho Operations Office, with concurrence by the Idaho Department of Health and Welfare, Division of Environmental Quality.

Chuck Fulton

11-22-99

Chuck Clarke, Regional Administrator
Region 10
U.S. Environmental Protection Agency

Date

Signature Sheet

Signature sheet for the *Record of Decision for OU 1-10, located in Waste Area Group 1, Test Area North*, of the Idaho National Engineering and Environmental Laboratory, between the U.S. Environmental Protection Agency Region 10 and the U.S. Department of Energy Idaho Operations Office, with concurrence by the Idaho Department of Health and Welfare, Division of Environmental Quality.

C. Stephen Allred, Administrator
Division of Environmental Quality
Idaho Department of Health and Welfare

Dec. 14, 1999
Date

Signature Sheet

Signature sheet for the Record of Decision for OU 1-10, located in Waste Area Group 1, Test Area North, of the Idaho National Engineering and Environmental Laboratory, between the U.S. Environmental Protection Agency Region 10 and the U.S. Department of Energy Idaho Operations Office, with concurrence by the Idaho Department of Health and Welfare, Division of Environmental Quality.

Beverly A Cook

Beverly A. Cook, Manager
U.S. Department of Energy,
Idaho Operations Office

12-2-99

Date